

REMARKS

The Office Action dated September 29, 2003 has been reviewed and carefully considered. Claims 1-20 remain pending, of which the independent claims are 1, 9 and 19. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

Claims 1-20 stand rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent 5,646,997 to Barton in view of U.K. Patent Application GB 2,326,048 to Yamadaji.

Claim 1 recites:

- (A) generating a transform representation of the image;
- (B) determining a digital signature unique to the image;
- (C) identifying high frequency coefficients within the transform representation; and
- (D) assigning values to the high frequency coefficients to correspond to the digital signature.

Item 2 of the Office Action suggests that Barton disclose steps (A) and (B), and acknowledges that Barton fails to disclose or suggest steps (C) and (D). As to the former proposition, the Office Action refers to a passage in Barton from column 3, line 58 to column 4, line 4, which discusses digital signatures such as a cyclic redundancy check (CRC) and a fast Fourier transform (FFT). Presumably then, the FFT is deemed to correspond to step (A) and the CRC, or some other digital signature, is deemed to correspond to step (B). Presumably also, it is being suggested that, since Barton embeds

into an uncompressed data block (col. 7, line 31), Barton is modified in view of Yamadaji to apply a transform to the Barton data block before the embedding.

In any event, it is conceded in item 2 of the Office Action that steps (C) and (D) of claim 1 of the present invention are neither disclosed in nor suggested by Barton.

Reading from the abstract of the Yamadaji reference, “The digital watermark . . . is inserted into a zero-run section immediately preceding an[d] End of Block in each of the quantized, scanned blocks of image data.”

Yamadaji states on page 16, lines 22-24, that the digital watermark is a “character, logo mark or trademark which will be the copyright data,” or a “portrait of the copyright owner.” Accordingly, the Yamadaji digital watermark is utilized to identify the source of an image signal, rather than to detect whether the image has been altered or tampered with (See present specification, page 2, lines 9-13).

Yamadaji mentions in lines 1-3 at page 26 that if said “zero-run section immediately preceding” the end-of-block of an image block has a size below a threshold M, no portion of the digital watermark is embedded in that block.

This is not problematic in Yamadaji, since other image blocks in the frame or in other frames can be utilized in the piecemeal conveyance of the digital watermark that identifies the copyright owner.

If, however, a digital signature were to be substituted for the Yamadaji watermark in an effort to detect tampering, such a methodology would be vulnerable to countermeasures. To modify an image block of choice, the tampering individual need only make the desired image alterations and then tweak whatever other pixels are needed, if any, until a transform coefficient of sufficiently high frequency attains a magnitude

great enough so that the coefficient is non-zero after quantization, thereby causing the Yamadaji information embedder 4 to skip that image block. Accordingly, the tampering with that block would go undetected at the Yamadaji receiver.

In fact, Barton, which unlike Yamadaji deals with measures against image tampering, teaches away from Yamadaji by rejecting the notion of storing embedded data in “specific fields” of the digital data stream for reasons of “security” (Barton, col. 2, lines 33-37). Moreover, although item 2 of the Office Action cites as motivation for Barton/Yamadaji “in order to appear in the reproduced image as high frequency noise and may not be significantly perceptible,” Barton already teaches that its methodology makes the embedding of the digital signature “substantially imperceptible” to the viewer of the image (col. 5, lines 6-9).

Claims 9 and 19 are system and software claims, respectively, that correspond to method claim 1, and are deemed to be patentable over the applied references for at least the same reasons.

As to the other rejected claims, each depends from a respective base claim and is therefore patentable for at least its dependency, although each warrants further consideration based on its corresponding additional merits.


For at least all of the above reasons, it is submitted that motivation would not have existed for the proposed Barton/Yamadaji combination. Accordingly, it is believed that the invention as recited in claim 1 is not rendered obvious by the applied references. Reconsideration and withdrawal of the rejection is respectfully requested.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

Russell Gross
Registration No. 40,007

Date: 12/26/03


By: Steve Cha
Attorney for Applicant
Registration No. 44,069

Mail all correspondence to:
Russell Gross, Registration No. 40,007
US PHILIPS CORPORATION
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9608
Fax: (914) 332-0615

Certificate of Mailing Under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to MAIL STOP NON-FEE AMENDMENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA. 22313 on 12/26/03.

Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)


(Signature and Date) 12/26/03